

## A new *Chryseofusus* (Gastropoda: Fasciolaridae: *Fusinus*) from South and Western Australia

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**KEYWORDS.** Mollusca, Gastropoda, Fasciolaridae, *Fusinus*, *Chryseofusus*, South Australia, Western Australia, Great Australian Bight, new species.

A new *Fusinus* (*Chryseofusus*) is described from South and Western Australia and compared to *F. (C.) graciliformis* (Sowerby, 1880), *F. (C.) jurgei* Hadorn & Fraussen, 2002, *F. (C.) artutus* Hadorn & Fraussen, 2003 and the endemic Australian *F. (C.) westralis* Hadorn & Fraussen, 2003. This new finding extends the range of *Chryseofusus* to South Australia (Great Australian Bight).

### INTRODUCTION

A new *Chryseofusus* species was brought to our attention by Mrs. Alison Miller from the Australian Museum in Sydney. The two specimens which are stored in the mollusc collection of the Australian Museum, Sydney, were collected almost hundred years ago by the Fisheries Investigation Ship 'Endeavour' in the deeper waters of the Great Australian Bight. Dr. W.F. Ponder examined these specimens in 1972 and recognized them as a new species in *Fusinus*, but they have remain undescribed. An additional third sample with 4 specimens was collected 20 years ago by commercial shrimp vessels near Rowley Shoals, Western Australia. Hadorn & Fraussen (2003) established the subgenus *Chryseofusus* in *Fusinus* to accommodate a number of deep water species sharing conchological characteristics different from typical *Fusinus*, and Hadorn & Chino (2005) and Hadorn & Fraussen (2006) described new *Chryseofusus* species from Japan and from southwest Pacific. The present species from the Great Australian Bight and Western Australia is another addition to this group. *Chryseofusus* is ecologically a deep water group, accomodating species from the Indo-Pacific upper bathyal zone, between 100 and 1900 m deep.

### Abbreviations

AMS: Australian Museum, Sydney, Australia  
ANSP: Academy of Natural Sciences of Philadelphia, Pennsylvania, USA  
BMNH: The Natural History Museum, London, Great Britain  
CRH: Collection Roland Hadorn, Röthenbach, Switzerland  
MNHN: Muséum national d'Histoire naturelle, Paris, France  
NM: Natal Museum, Pietermaritzburg, South Africa  
WAM: Western Australian Museum, Perth, Australia

### SYSTEMATICS

Family **FASCIOLARIIDAE** Gray, 1853

Genus *Fusinus* Rafinesque, 1815

*Fusinus* Rafinesque, 1815: 145. Substitute name for 'Fusus Lamarck 1799' [=Fusus Bruguière, 1789], non *Fusus* Helbling, 1779.

Type species. *Murex colus* Linnaeus, 1758, by typification of replaced name.

Subgenus *Chryseofusus* Hadorn & Fraussen, 2003  
*Chryseofusus* Hadorn & Fraussen, 2003: 207-240.

Type species. *Fusus chrysodomoides* Schepman, 1911, by original designation.

*Fusinus (Chryseofusus) alisonae* sp. nov.

Figs 1-11

**Type material.** Holotype (69.2 x 26.1 mm) AMS C.50986, South Australia, Great Australian Bight, south of Head of Bight, 33°25' S, 131°00' E, 366 m deep, collected alive by the Fisheries Investigation Ship 'Endeavour' (May 05, 1913); paratype 1 (61.9 x 24.9 mm) AMS C.89589, same locality. Paratype 2 (51.2 x 19.3 mm) ANSP 416380, Western Australia, near Rowley Shoals, 380-450 m deep, trawled by shrimp vessels (1987); paratype 3 (50.3 x 19.6 mm) ANSP 416380, same locality; paratype 4 (46.2 x 19.9 mm) CRH, same locality; paratype 5 (43.0 x 17.2 mm) ANSP 416380, same locality.

**Type locality.** South Australia, Great Australian Bight, south of Head of Bight, 33°25' S, 131°00' E.

**Etymology.** *Fusinus (Chryseofusus) alisonae* sp. nov. is named to honour Mrs. Alison Miller, Technical Officer at the Malacology Section of the Australian Museum in Sydney.

**Description.** Shell of medium size (to about 70 mm), fusiform, consisting of about 9 slightly bicarinated postnuclear whorls, giving the shell a moderately bicarinate profile with a slight subsutural concavity. Double keel more pronounced on upper whorls, situated slightly below middle of whorls, shoulder slope concave.

Colour off-white, occasionally with reddish-brown tinged apex and/or tip of siphonal canal. Occasionally with red-brown tinged spiral cords on body whorl and along suture.

Suture distinct, slightly wavy, following axial sculpture of preceding whorl on spire whorls, straight on body whorl.

Protoconch decollate in all available specimens. Two specimens show a partly preserved white, glossy, smooth last protoconch whorl with some weak axial riblets near transition to teleoconch. Transition to teleoconch marked by weak varix. Diameter: 0.9-1.0 mm.

Axial ribs rather inconspicuous, broad, low, with narrow interspaces. 8-10 on 4 upper postnuclear whorls, running from suture to suture. 8-12 axial ribs on following whorls, starting below the suture in the subsutural concavity. Axial sculpture suddenly irregular, weak and low from penultimate whorl on, numbering about 10-15 often indistinct axial ribs, occasionally evanescent on body whorl.

Teleoconch beginning with 4 primary spiral cords, abapical ones stronger. 5 primary spiral cords on second whorl. From second or third whorl on, an intercalated secondary spiral cord appears between primary cords, occasionally becoming as strong as primary cords on latter whorls. From third whorl on, fine tertiary cords appear on both sides of stronger secondary cords. Number of tertiary cords on body

whorl increasing to up to 6 by intercalation. Spiral sculpture crossed by conspicuously strong growth lines giving surface the texture of linen.

Aperture ovate, pinched at both ends, whitish or yellowish, smooth within. Outer lip simple. Parietal callus rather thick, smooth, appressed, lacking folds and teeth.

Siphonal canal open, slightly shorter than length of aperture, straight, slightly twisted and turned backwards at tip.

Operculum corneous, dark brown, shape and size corresponding to aperture, nucleus apical.

Radula (Fig. 7) typical of *Fusinus*. Central tooth round-ovate, tricuspid, cusps slightly projecting below slightly broader base. Lateral teeth curved with 8 strong pointed cusps with incurved tips.

**Range and habitat.** South Australia, Great Australian Bight, south of Head of Bight, and Western Australia, near Rowley Shoals. Live collected specimens 366 m deep, empty shells 380-450 m deep.

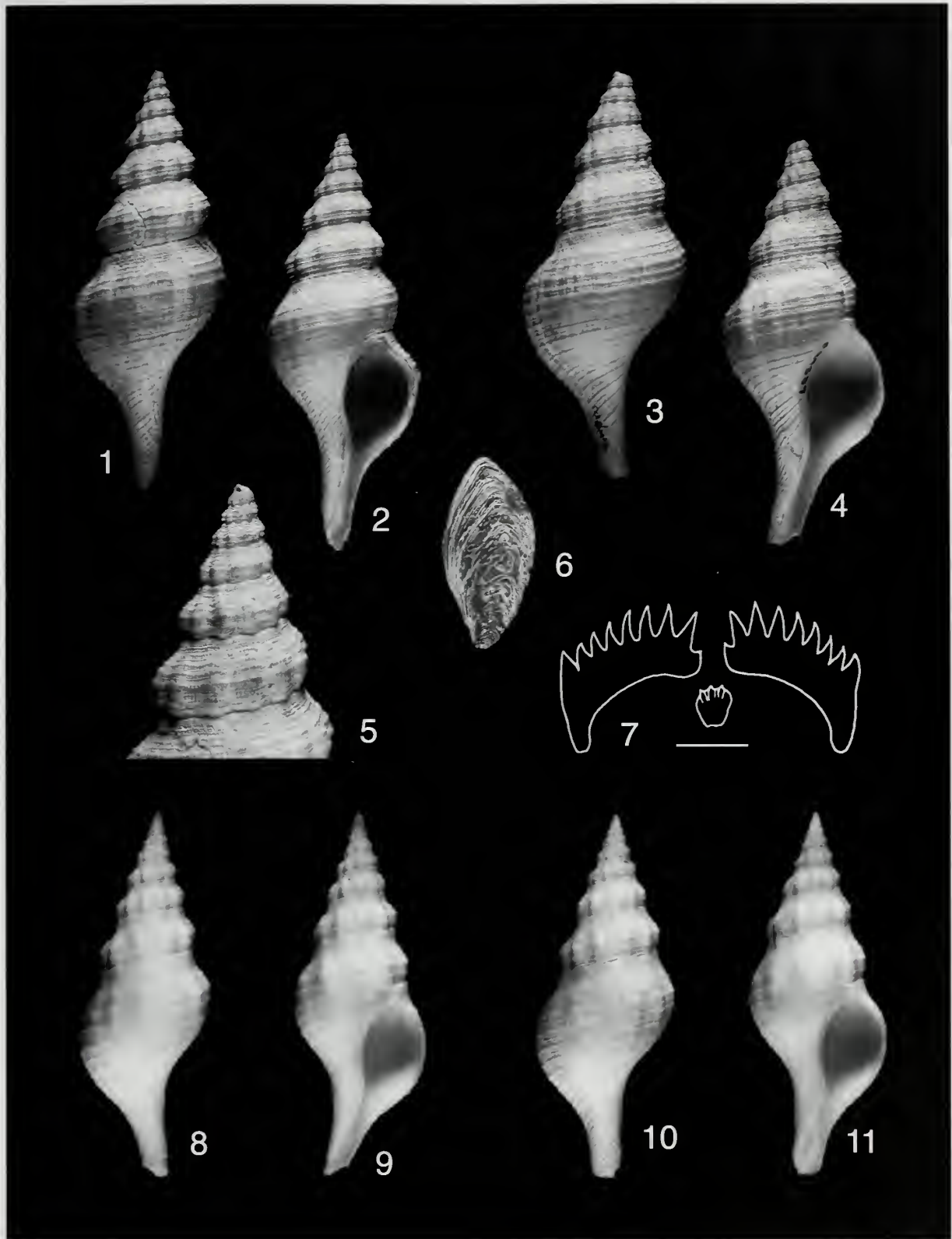
This new finding extends the geographical distribution of the subgenus *Chryseofusus* to South Australia (Great Australian Bight).

**Discussion.** *Fusinus alisonae* sp. nov. is placed in the subgenus *Chryseofusus* based on the smooth adapical whorls, the weak, close-set, inconspicuous, regular spiral sculpture crossed by distinct growth lines giving the surface the texture of linen, the relatively short spire and siphonal canal, the modestly convex whorls with subsutural concavity, and the simple, adherent parietal callus.

This new taxon has a geographic distribution different from all known *Chryseofusus* species. The only species known from Australian waters, *F. (C.) westralis* (Figs 18-19), which is endemic to northwestern Australia, differs in having a much larger size (up to 140 mm), a longer spire, a larger number of ventricose, non-carinated whorls, an almost obsolete axial sculpture and conspicuously fine spiral sculpture.

*Fusinus (C.) alisonae* sp. nov. differs from:

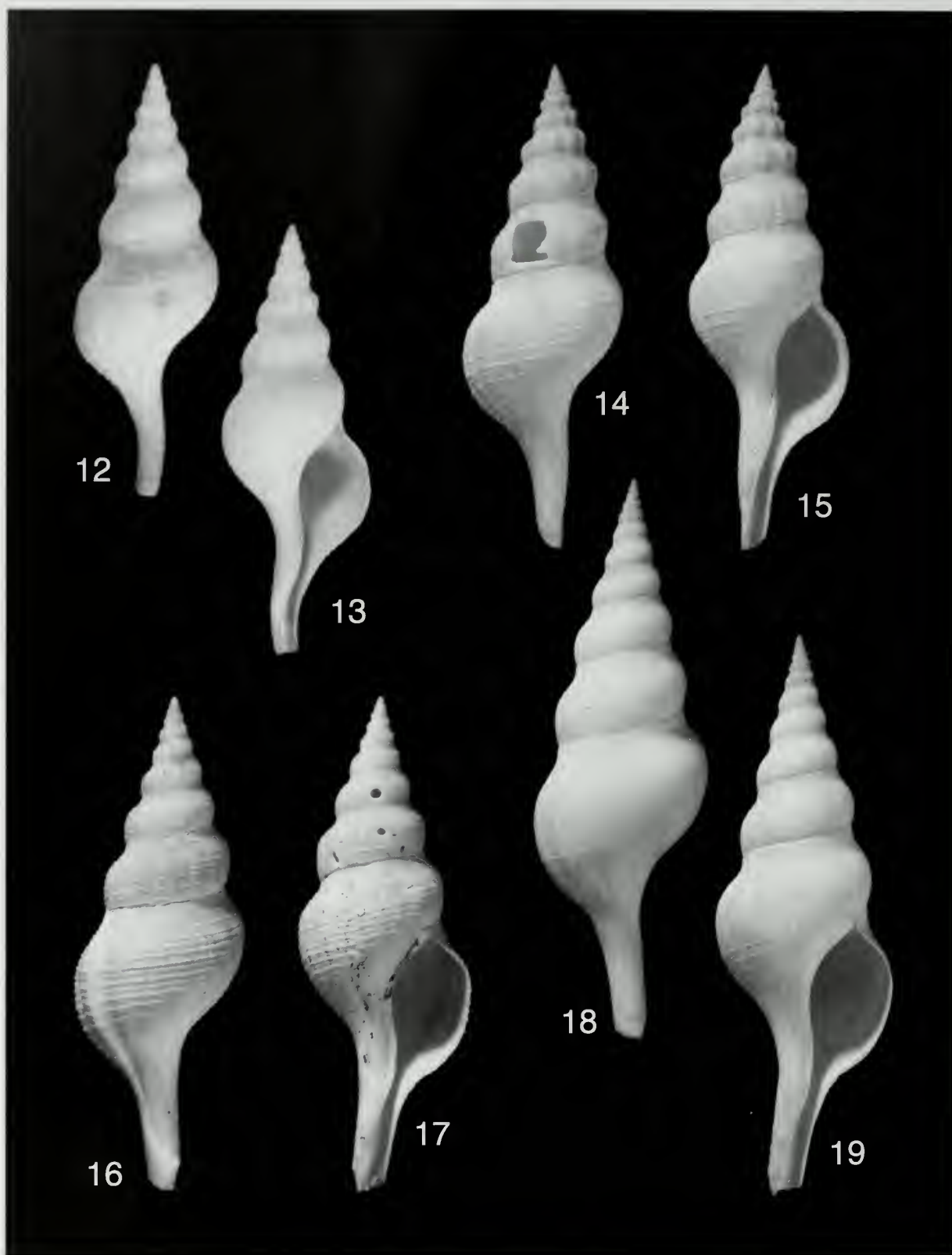
- *Fusinus (C.) graciliformis* (Sowerby, 1880) (Figs 12-13) from the Indo-West Pacific, in having a less prominent axial sculpture on upper whorls, usually obsolete axial ribs on penultimate and body whorl, convex and unkeeled whorls, and a more slender and twisted siphonal canal.
- *Fusinus (C.) jurgeni* Hadorn & Fraussen, 2002 (Figs 14-15) from the east African coast, in having a larger size (up to 100 mm), a larger number of whorls, usually weak or obsolete axial sculpture on penultimate and body whorl, and a comparatively longer siphonal canal.
- *Fusinus (C.) artutus* Hadorn & Fraussen, 2003 (Figs 16-17) from the Philippine Islands, in having a flesh coloured to light brownish shell, more numerous, finer and narrower axial ribs on upper whorls, abruptly fading away on penultimate



Figures 1-11. *Fusinus (Chryseofusus) alisonae* sp. nov.

1-2. Holotype AMS C.50986, South Australia, Great Australian Bight, south of Head of Bight, 69.2 mm; 3-4. Paratype 1 AMS C.89589, South Australia, Great Australian Bight, south of Head of Bight, 61.9 mm; 5. Spire tip, holotype AMS C.50986; 6. Operculum, paratype 1 AMS C.89589; 7. Radula, paratype 1 AMS C.89589, scale bar = 100 µm; 8-9. Paratype 2 ANSP 416380, Western Australia, near Rowley Shoals, 51.2 mm; 10-11. Paratype 3 ANSP 416380, Western Australia, near Rowley Shoals, 50.3 mm.





Figures 12-19.

12-13. *Fusinus (Chryseofusus) graciliformis* (Sowerby, 1880). Holotype BMNH 1880.10.15.2, Japan, 52.5 mm; 14-15. *Fusinus (Chryseofusus) jurgeni* Hadorn and Fraussen, 2002. Holotype MNHN, southwest Madagascar, 94.2 mm; 16-17. *Fusinus (Chryseofusus) artutus* Hadorn and Fraussen, 2003. Holotype NM L2083, Philippine Islands, Bohol, Panglao, 72.2 mm; 18-19. *Fusinus (Chryseofusus) westralis* Hadorn and Fraussen, 2003. Holotype WAM S10876, northwest Australia, Rottneest Island, 114.4 mm.

whorl, and by the obsolete axial sculpture on the body whorl.

#### ACKNOWLEDGMENTS

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#### REFERENCES

Hadorn, R. & Chino, M., 2005. A new *Fusinus* (Gastropoda: Fascioliidae) from Japan. *Iberus* 23 (2): 157-163.

Hadorn, R. & Fraussen, K., 2003. The deep-water Indo-Pacific radiation of *Fusinus* (*Chryseofusus* subgen. nov.) (Gastropoda: Fascioliidae). *Iberus* 21 (1): 207-240.

Hadorn, R. & Fraussen, K., 2006. Five new species of *Fusinus* (Gastropoda: Fascioliidae) from western Pacific and Arafura Sea. *Novapex* 7 (4): 91-102.

Rafinesque, C.S., 1815. *Analyse de la nature ou tableau de l'univers et des corps organisés*. Palerme. 224 pp.